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A NEW METHOD TO COMBAT TREE DISEASES

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Left to right: Thomas Jones, Garold Gregory and Percy McWain

FOREST SERVICE RESEARCHERS DEVELOP TECHNIQUE TO -------

give trees a 'SHOT IN THE BARK'

As man has learned how to protect himself against harmful diseases by getting helpful injections from the doctor, so also may he now be able to protect his trees, thanks in part to the work of a team of Forest Service researchers at Delaware, Ohio.

Under the leadership of Thomas Jones, the team of scientists has developed a unique technique for injecting fungicides directly into the tree's sap stream, thus greatly improving the distribution of helpful chemicals throughout the tree and greatly assisting in the fight against harmful diseases.

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NORTHEASTERN FOREST EXPERIMENT STATION • UPPER DARBY, PENNSYLVANIA 19082

Working with Jones to develop the method of giving what may prove to be life-saving shots to trees, were: Garold F. Gregory and Percy McWain.

This process has promise of greatly increasing the effectiveness of chemicals known to be useful against Dutch elm disease and oak wilt. And the system not only has economic and physical advantages, but it largely avoids the environmental pollution hazards associated with other methods of chemical application.

Besides developing a method of injecting trees, the team of Forest Service researchers also found a way of making benomyl -- a fungicide -- soluble. With these two breakthroughs, the scientists feel that they are now on the threshold of controlling such destructive tree diseases as Dutch elm in American elms and oak wilt in white oaks.

In tests conducted in the Fall of 1971, the researchers were able to inject trees with 60-foot crowns and get chemicals to move to the farthest twig.

The tools for injecting the tree are relatively simple. They consist of an injection head attached to a small hydraulic jack, a belt to hold the apparatus in place on the tree, a gasket to provide a seal between the head and sapwood surface, a fluid supply hose with a valve near the injector head, a solution reservoir, a pressure regulator, and a supply of compressed gas.

The Forest Service scientists feel that it may be a little too early to say that there now exists a method for controlling tree diseases. But it does look very promising as a means of protecting trees against fungus-caused diseases. With the technique, there are definitely the possibilities of providing therapy for already diseased trees.

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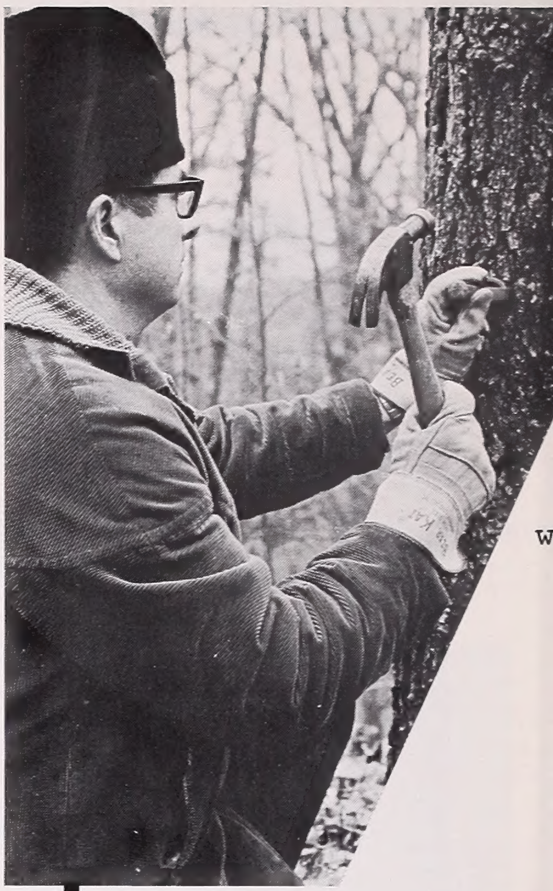

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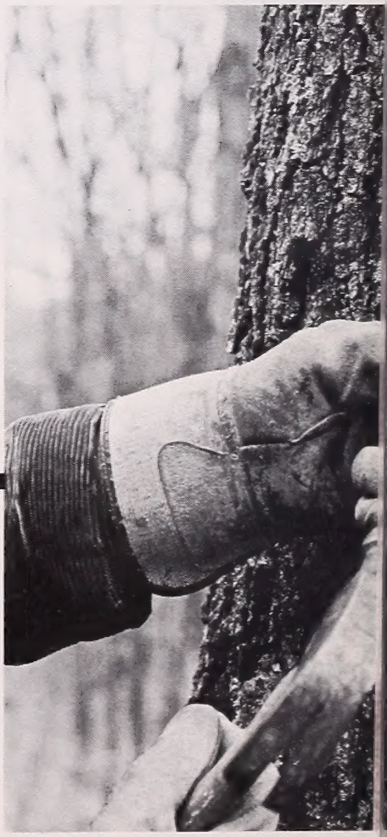

A wedge-shaped h
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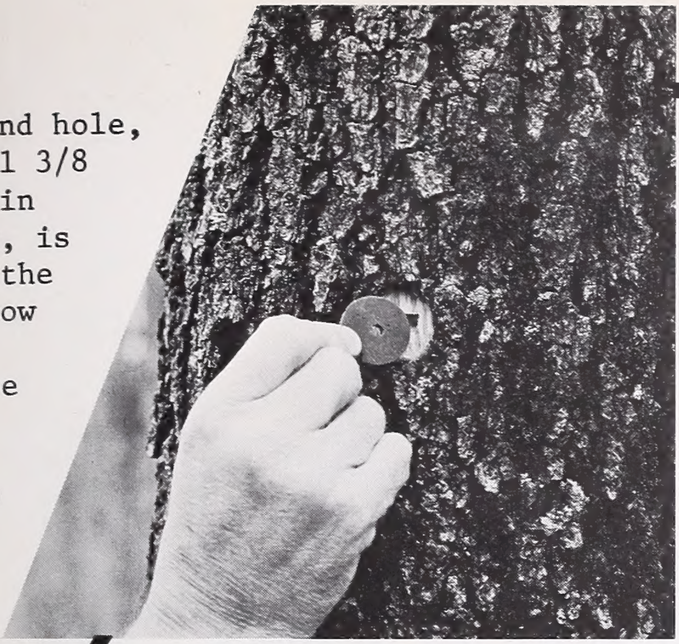
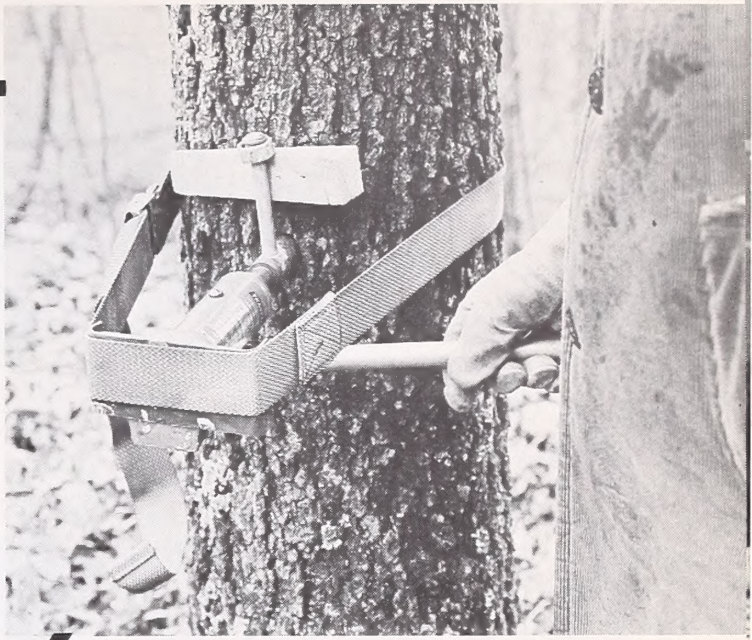


A neoprene gasket is now placed in the bark hole. This provides a snug fit for the injector head.



The injector head, placed into the hole and positioned with a belt around the tree. Pumping jack provides firm fit.

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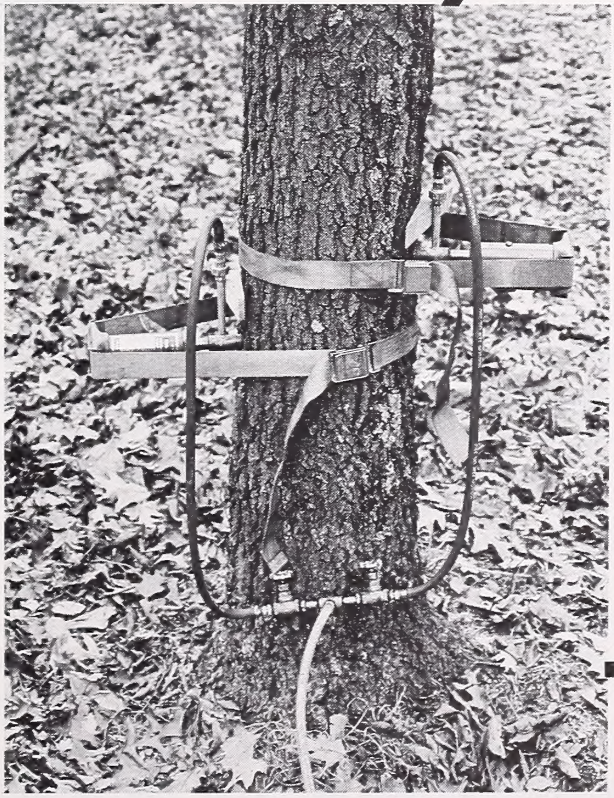
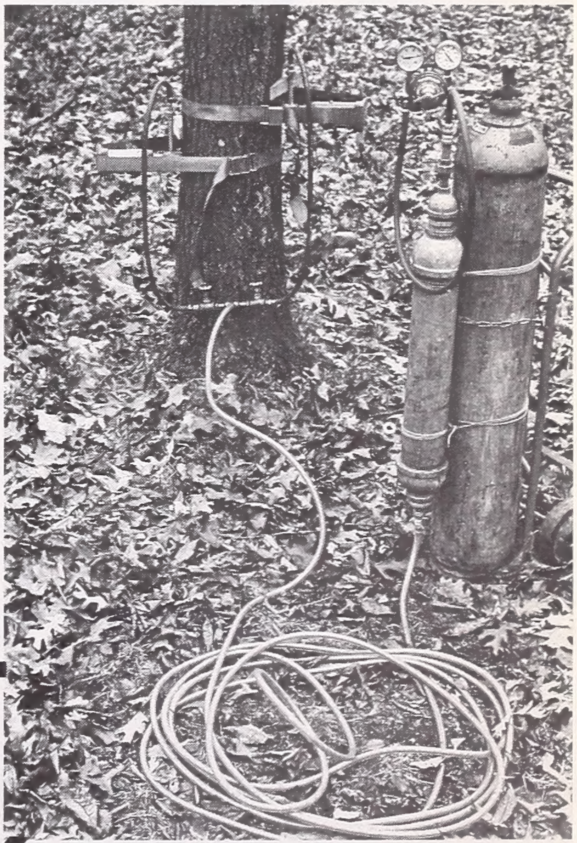


This shows a two-unit with the injector heads attached to plastic tubing thru which the chemical passes.



This is the whole unit, showing connection on tree, tubing, solution reservoir, and compressed gas.

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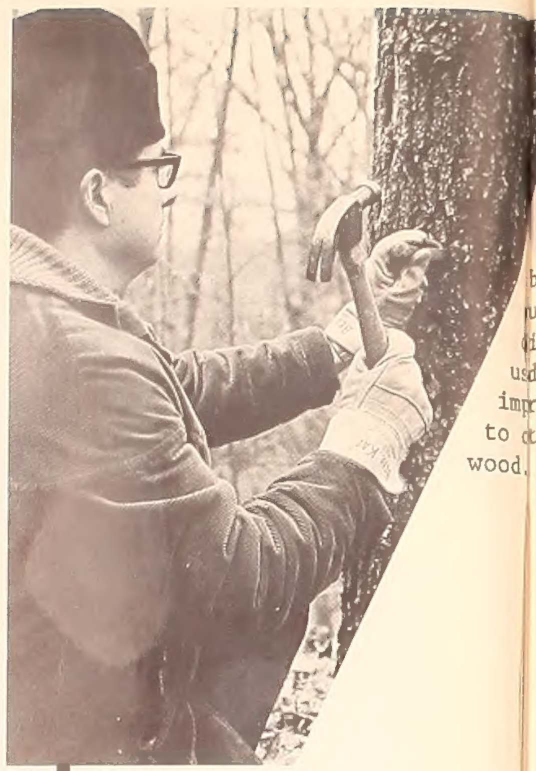
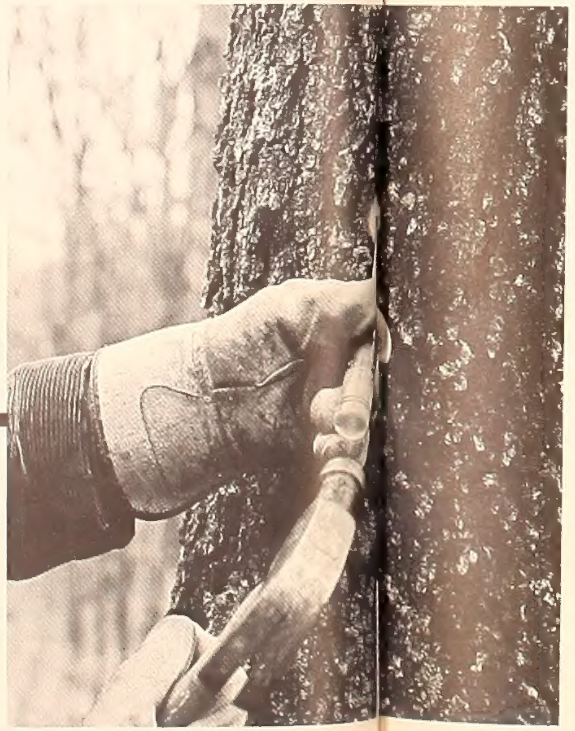
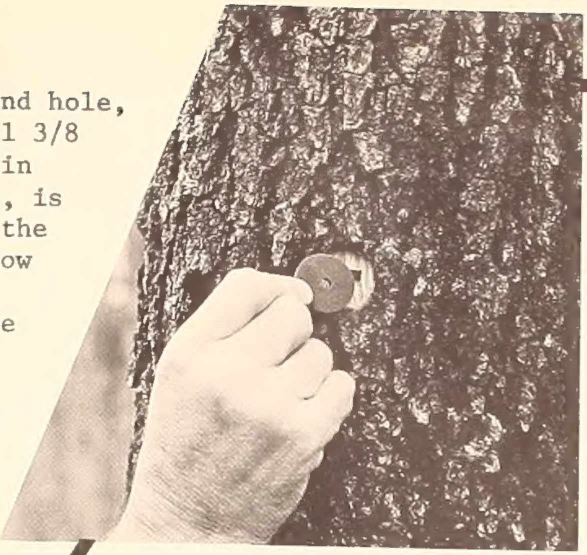


A round hole, about 1 3/8 inches in diameter, is cut thru the bark. A bow unch or isel can be usd. It is imrtant not to c into sap wood.



A wedge-shaped hole i next cut in the center of t exposed sapwood with a 1/ inch chisel. Depth is two or three annual rings.



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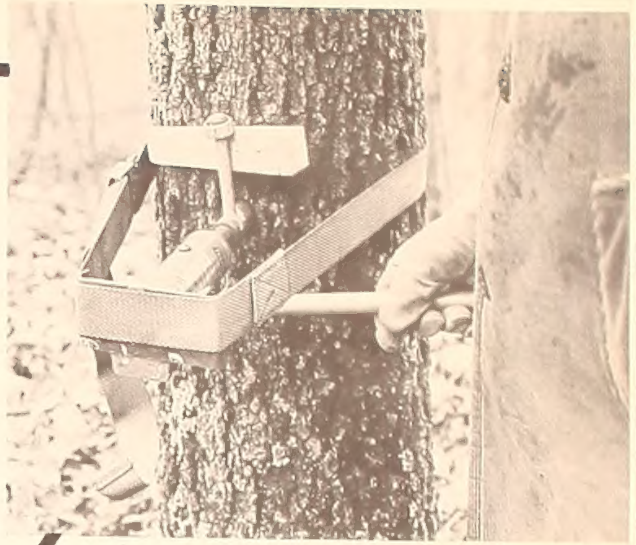
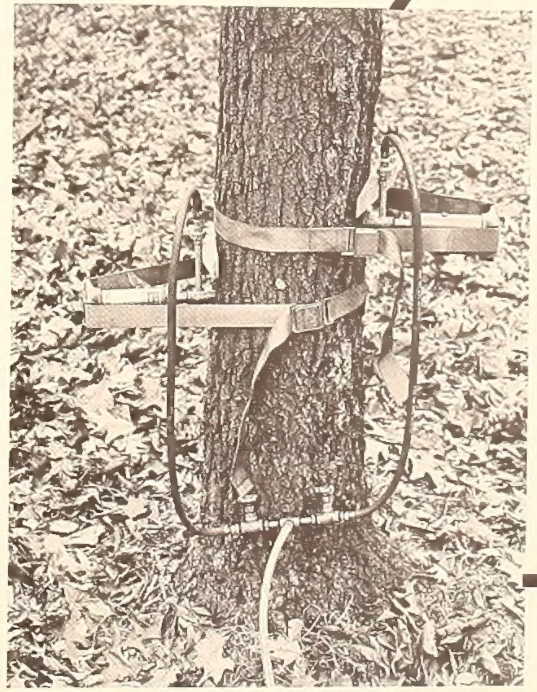


The injector head, placed into the hole and positioned with a belt around the tree. Pumping jack provides firm fit.



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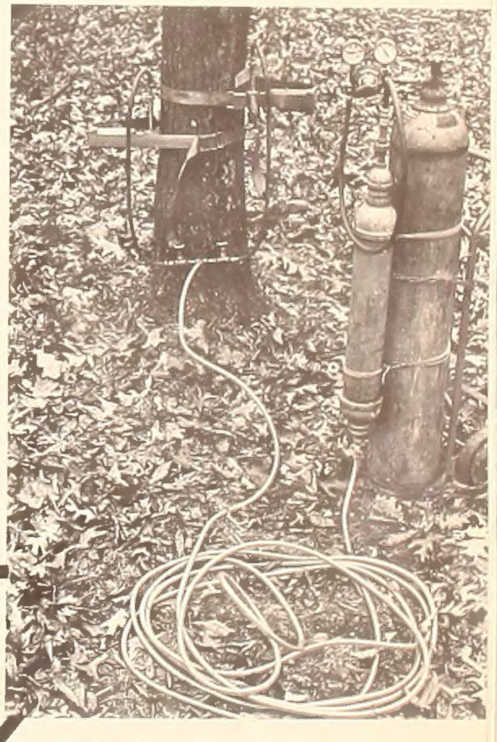
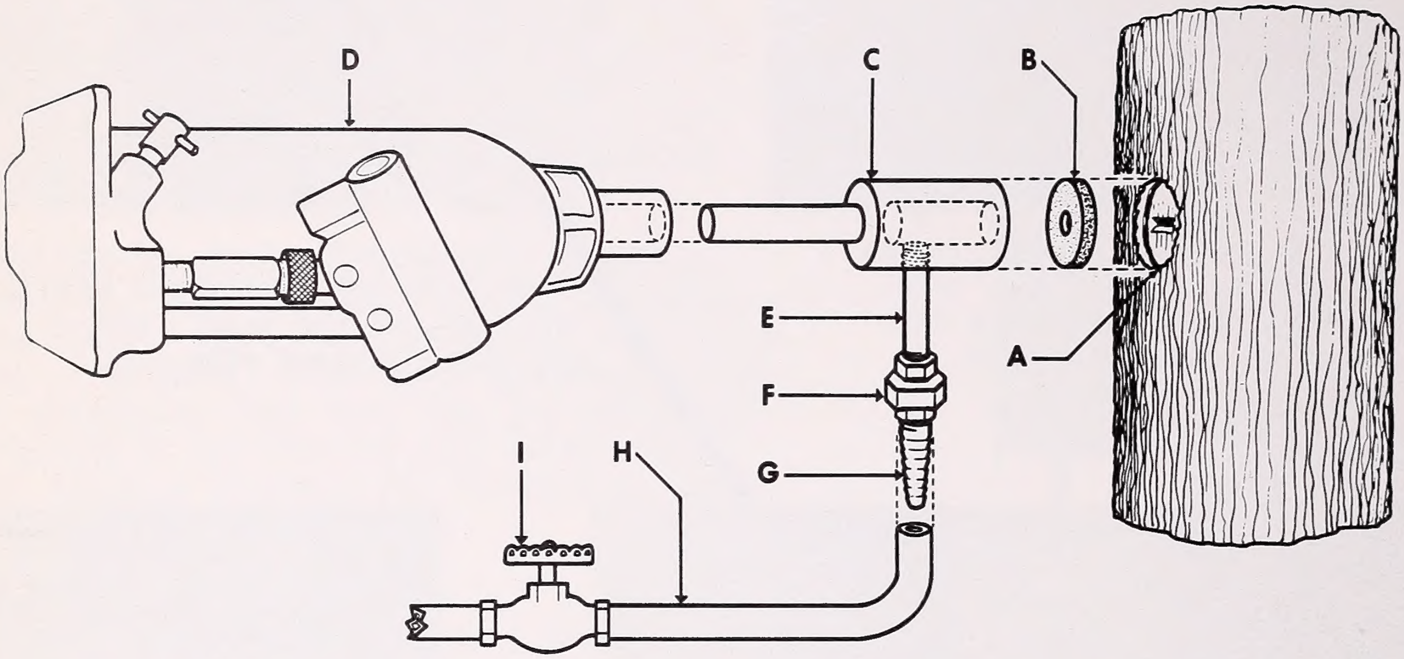


This is the whole unit, showing connection on tree, tubing, solution reservoir, and compressed gas.



The injector apparatus: A. Prepared injection site on tree; B. Neoprene gasket; C. Injector head; D. Hydraulic jacks; E. Galvanized iron pipe; F. Pipe union; G. Tapered hose fitting; H. Fluid supply hose; and I. Gate valve.

Much more research will be required before the potential of this breakthrough in tree-disease research can be fully realized.

As the Forest Service research team points out: "There are a few remaining problems to solve. We have to do some Spring testing. And we need to redesign and refine our injection system. But these are minor problems and we feel we can easily resolve them."

As things now stand, these government researchers have proven the worth of an injection system for trees, and have made a helpful chemical soluable for further use in man's struggle against diseases that destroy some of his most valuable shade trees.